

Geometry 9.7 Notes: Vectors (pp 573-5)
Magnitude of a Vector

Examples: P and Q are the initial and terminal points of \overrightarrow{PQ} . Write the component form and magnitude.

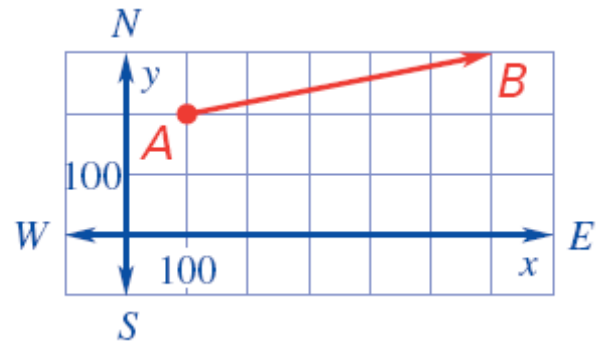
1. $P(0, 1)$ & $Q(-3, 5)$

2. $P(-2, -1)$ & $Q(1, 5)$

Direction of a Vector

Examples: \overrightarrow{AB} describes the velocity of a plane. The scale is mi/h.

3. Find the speed.



4. Find the direction it is traveling relative to east.

Geometry
Equal Vectors

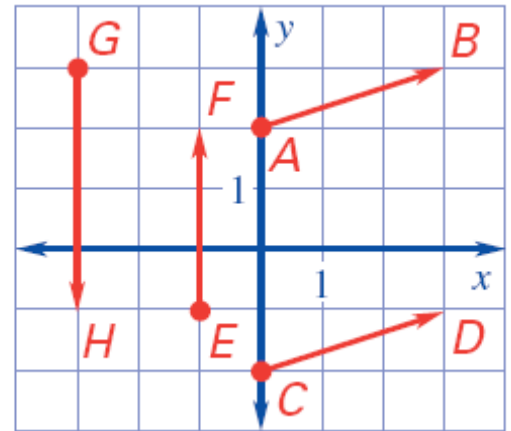
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Parallel Vectors

Examples

5. Which vectors have the same direction?

6. Which are equal?

7. Which are parallel?

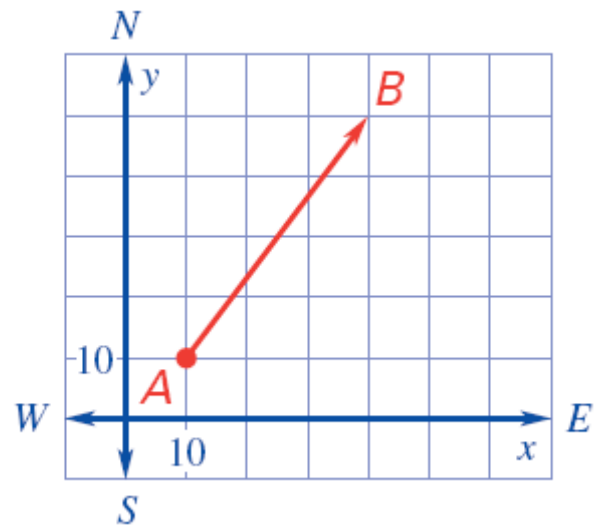


Guided Practice.

8. $P(3, 4)$ & $Q(-2, 2)$ are initial and terminal points.
Write the component form and magnitude.

Examples: \overline{AB} describes the velocity of a ship. The scale is mi/h.

9. Find the speed.



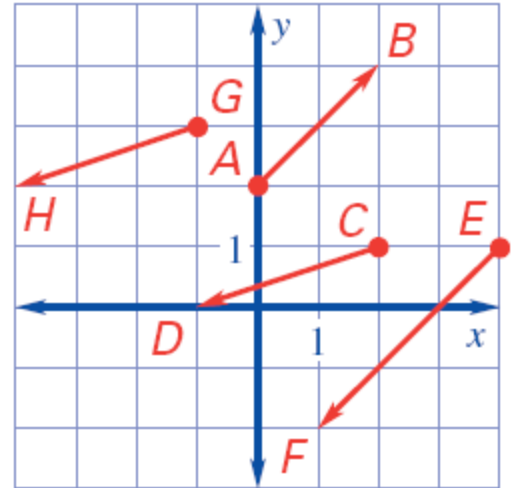
10. Find the direction it is traveling relative to east.

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11. In the diagram, which vectors have the same direction?

12. Which vectors are equal?

13. Which vectors are parallel?



Adding Vectors

Examples

14. Let $\vec{u} = \langle 5, -1 \rangle$ & $\vec{v} = \langle 3, 4 \rangle$. Find $\vec{u} + \vec{v}$.

15. A jet is flying northeast at about 550 miles per hour. Its velocity is represented by the vector $\vec{v} = \langle 389, 389 \rangle$. The jet encounters a wind blowing from the west at 50 miles per hour. The wind velocity is represented by $\vec{u} = \langle 50, 0 \rangle$. Find the jet's new velocity vector \vec{s} and the magnitude of \vec{s} .

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Guided Practice.

16. Let $\vec{u} = \langle 2, -3 \rangle$ & $\vec{v} = \langle 1, 6 \rangle$. Find $\vec{u} + \vec{v}$.

17. A jet is flying northeast at about 670 miles per hour. Its velocity is represented by the vector $\vec{v} = \langle 474, 474 \rangle$. The jet encounters a wind blowing from the east at 80 miles per hour. The wind velocity is represented by $\vec{u} = \langle -80, 0 \rangle$. Find the jet's new velocity vector \vec{s} and the magnitude of \vec{s} .

18. What is meant by the *magnitude of a vector* and the *direction of a vector*?